	Application No.	Applicant(s)
Notice of Allowability	10/699,850	FULDSETH ET AL.
	Examiner	Art Unit	
	Guy J. Lamarre	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *02/13/2008*.

2. ☒ The allowed claim(s) is/are *1-10, 13-18, 37-38, now renumbered 1-18*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some*   c) ☐ None   of the:
       1. ☐ Certified copies of the priority documents have been received.
       2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
       3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
       1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .
    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
       Paper No./Mail Date _____ .
    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)
1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
    Paper No./Mail Date *4/1/04;11/04/2003*
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
    Paper No./Mail Date *5/21/08* .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

/Guy J Lamarre/
Primary Examiner, Art Unit 2112

Examiner's Amendment & Reasons for Allowance

•   **Claims 1-18, 37,** and 38 are elected and remain pending. Non-elected **Claims 19-36, 39-57** are withdrawn from consideration.

•   The Examiner gratefully acknowledges Applicants' cooperation in expediting prosecution of instant application.

Examiner's Amendment

*   An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Bradley Lytle on 21 May 2008.

The following has been amended:

Claims 10-12, incorporated into **Claims 1** and **37** to overcom the prior art, are cancelled.

Non-elected **Claims 19-36, 39-57** are cancelled without prejudice or disclaimer.

Claims 1, 13, 37 are replaced as follows:

--- 1. A video-conferencing system, comprising:

a decoder; an encoder connected to the decoder by a network;

a packet loss detection mechanism co-located with the decoder, the packet loss detection mechanism configured to detect a lost packet and to transmit one of a packet loss notification message and a lost packet identification message; and one of

a sustained packet loss detection mechanism co-located with one of the encoder and the

packet loss detection mechanism, the sustained packet loss detection mechanism configured to

receive the packet loss notification message and to inform the encoder that the packet loss

notification message indicates a presence of one of a first and a second predetermined packet

loss scenario, and

an error concealment device co-located with the decoder and connected to the packet loss

mechanism, the error concealment device configured to replace motion vector data lost from a

current frame with motion vector data from a previous frame in response to the lost packet

identification message;

wherein the encoder is further configured to determine one of a reliability of a reference block

and   a   change   in   a   reference   block   mean   value;

wherein the encoder is configured to determine a reliability of a reference block on the basis of a

period   since   the   reference   block   was   last   updated   as   INTRA;   and

wherein the encoder is configured to determine a reliability R_n of a reference block in a frame n

is determined as follows:

$R_n = 1-p$ for INTRA blocks;

$R_n = (1-p) R_{n-1}$ for INTER blocks with non-zero difference signal; and

$R_n = R_{n-1}$ for INTER blocks with zero difference signals, where

p is a packet loss probability and R_{n-1} is one of a reliability of a same block in a previous

frame and an expression dependent on a reliability of neighbor blocks that includes non-

zero motion vectors effects. ---

----13. The video-conferencing system of claim 1, wherein the encoder is configured to determine a change in mean value, MD_n for a block in a frame n as follows:

$$MD_n = | M_n - M_{n-1} |$$

where M_n and M_{n-1} are mean values of a block in frame n and n-1, respectively.---

---- 37. A video-conferencing interface device connecting two networks, comprising:

a decoder connected to an upstream encoder by a first of the two networks;

an encoder connecting the decoder to a downstream decoder by a second of the two networks; a packet loss detection mechanism connected to the decoder configured to detect a lost packet and to transmit one of a packet loss notification message and a lost packet identifier; and

one of a sustained packet loss detection mechanism connected to the packet loss detection mechanism and the upstream encoder, the sustained packet loss detection mechanism configured to receive the packet loss notification message and to inform the upstream encoder that the packet loss notification message indicates a presence of one of a first and a second predetermined upstream packet loss scenario, and an error concealment device connected to the decoder and the packet loss detection mechanism, the error concealment device configured to replace a lost motion vector with a replacement motion vector from a previous frame;

wherein the encoder is further configured to determine one of a reliability of a reference block and a change in a reference block mean value; wherein the encoder is configured to determine a reliability of a reference block on the basis of a period since the reference block was last updated as INTRA; and

wherein the encoder is configured to determine a reliability R_n of a reference block in a frame n

is determined as follows:

$R_n = 1-p$ for INTRA blocks;

$R_n = (1-p) R_{n-1}$ for INTER blocks with non-zero difference signal; and

$R_n = R_{n-1}$ for INTER blocks with zero difference signals, where

p is a packet loss probability and R_{n-1} is one of a reliability of a same block in a previous

frame and an expression dependent on a reliability of neighbor blocks that includes non-

zero motion vectors effects. ---

Reasons for Allowance

*   **Claims 1-9, 13-18, 37-38** thus remain pending.

.1   **Claims 1-9, 13-18, 37-38** are allowable over the prior art. The following is an

examiner's statement of reasons for allowance:

The prior art of record is exemplified by **Yao WANG et al.** "*Error Control And*

Concealment For Video Communication: A Review"- Proceedings of the IEEE, May 1998, Vol.

86, No. 5, Pages 974-997, <u>IDS of 4/1/04</u>-, **Fukunaga et al.** (EP 0763944; 19 March 1997; <u>IDS</u>

<u>of 4/1/04</u>) and Sato **et al.** (USPN 6594790).

Yao WANG teaches error control and concealment for a video communication system

comprising a decoder, encoder, data channel, packet loss detection wherein a plurality of error

concealment approaches are investigated, approaches comprising loss information recovery via

use of 'a priori knowledge about the image signals, primarily the temporal and spatial

smoothness property' at Table 3 and pages 989-995.

Fukunaga teaches error control and concealment for a video coder integrating both intra-frame coding and inter-frame coding as depicted in Fig. 1 and related description at cols. 6-18.

Sato discloses a <u>transmission system employing intra-frame error concealment wherein</u> *'error-concealment method includes decoding the AC component and DC component of each intra-block separately, and detecting decoding errors. When an error is detected, at least one of four conditions is tested: whether the DC coefficient is within a predicted range; whether the intra-block has a motion vector outside an acceptable range; whether the change in the motion vector is outside an acceptable range; and whether the intra-block was non-forced. The error is concealed by DC replacement if all of the tested conditions are satisfied, and by temporal replacement if any one of the tested conditions is not satisfied. The tested condition(s) may be any one of the above four conditions, any combination of two or three of the conditions, or all four of the conditions..'* at col. 2 line 48 et seq.

However, these references do not teach or suggest the combination of claim elements for the specific operations described therein.

.2 Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

* Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guy J. Lamarre, P.E., whose telephone number is (571) 272-3826. The examiner can normally be reached on Monday to Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis-Jacques, can be reached at (571) 272-6962.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-3609.

Information regarding the status of an application may also be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Guy J Lamarre/
Primary Examiner, Art Unit 2112